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THIRD MANAGEMENT PLAN

FOR

TUCSON
ACTIVE MANAGEMENT AREA

2000-2010

ARIZONA DEPARTMENT OF WATER RESOURCES

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December 13, 1999

Dear Interested Parties:

The Plan for the Third Management Period, adopted in December 13, 1999, is the third in a series of five management plans designed to achieve Active Management Area (AMA) management goals. The Groundwater Management Code of 1980 requires the Arizona Department of Water Resources (ADWR) to issue management plans at the beginning of each decade until 2020.

The Third Management Plan adopts water management programs for the Prescott, Phoenix, Pinal, Tucson and Santa Cruz Active Management Areas over the next 10 years. Each Plan contains three sections. The first section provides an overview of water resource conditions and water use characteristics in each AMA.

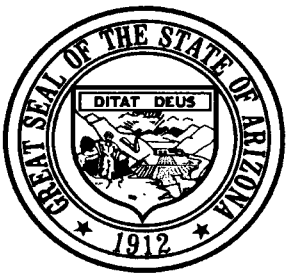
The second section covers the regulatory programs administered by ADWR for the agricultural, municipal and industrial sectors. Also included are descriptions of the aquifer recharge and water quality programs, as well as the water management assistance program. The third section contains projections about future conditions in the individual AMAs, an assessment of progress towards goal achievement, and recommendations regarding future water management strategies.

As Director of ADWR, I appreciate the work of the Groundwater Users Advisory Council in each of the AMAs. ADWR also acknowledges and appreciates the contribution of technical committees and advisors, the regulated community and the citizens of each AMA. Without their help, these management plans could not have been developed.

Sincerely,

Rita P. Pearson
Director

RPP:kd



Third Management Plan
2000–2010
Tucson Active Management Area

December 1999

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Preface

Arizona's arid climate directly affects our economy and quality of life. All economic activity, including industry, irrigated agriculture, and municipal development occurs only where dependable water supplies are available. As a result, Arizona places a high priority on managing its limited water to ensure that secure water supplies are available now and well into the future.

Historically, Arizona has relied heavily on its groundwater sources to serve demand. This heavy reliance has resulted in significant overdrafting of our groundwater sources, a condition that continues to exist today. Overdrafting the state's groundwater supplies undermines our ability to ensure a secure water supply for the future. In recognition of this threat, Arizona implemented the Groundwater Code of 1980. The Code promotes water conservation and the use of renewable or non-groundwater resources.

The Code requires the Arizona Department of Water Resources (Department) to promulgate a series of five management plans for the areas of the state designated as active management areas (Pinal, Phoenix, Prescott, Tucson, and Santa Cruz).

- The First Management Plan for the Tucson Active Management Area (AMA), adopted in December of 1984, initiated basic water management programs through mandatory conservation requirements for major water users within the AMA.

- The Second Management Plan, adopted in December of 1989, established more comprehensive and aggressive conservation requirements, coupled with an augmentation program.

- The Third Management Plan is the third in this series of five management plans required by the Code. This plan and the period of time it covers (2000 to 2010) represents the mid-point of our efforts to achieve the goal of the Code: safe-yield by 2025 or earlier. It continues and refines the mandatory conservation requirements of the Second Management Plan, continues to encourage and support the use and storage of renewable water supplies, and discusses the future direction of water management programs in the AMA. This plan is divided into three sections.

    - Section 1 provides an overview of the Department's management approach, the water resources in the Tucson AMA, and the water use characteristics in the Tucson AMA.

    - Section 2 contains the regulatory programs and decision-making criteria of the Third Management Plan.

    - Section 3 describes the Department's vision for the future of the Tucson AMA.

The management plans are initially issued in draft form after extensive research and planning by the Department and review by the AMA Groundwater Users Advisory Council (GUAC) and technical advisory committees (TACs). After the draft plans are issued, the Department holds hearings to provide the public an opportunity to comment orally and in writing. The Department evaluates the public comments and issues a summary of the hearings and findings prior to issuing the first order of adoption of the plans. Regulated parties are then provided an opportunity to request rehearing and review. After responding to any such requests, the Department adopts the final management plan and notifies regulated parties of their water duties and conservation requirements.

The Department appreciates the participation by the Groundwater Users Advisory Council, technical advisory committees, the regulated water community, and the citizens of the Tucson Active Management Area. Public involvement is instrumental to the success of Arizona's water management efforts.

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List of Acronyms

A.A.C.	Arizona Administrative Code
ACC	Arizona Corporation Commission
ACP	Alternative Conservation Program
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
AGTAC	Agricultural Technical Advisory Committee
AFP 44	Air Force Plant Number 44
AMA	Active Management Area
AOI	Area of Impact
APP	Aquifer Protection Permit
A.R.S.	Arizona Revised Statutes
ASFC	areas of similar farming conditions
AVID	Avra Valley Irrigation District
AWBA	Arizona Water Banking Authority
AWPF	Arizona Water Protection Fund
AWQSs	Aquifer Water Quality Standard
AWS Program	Assured Water Supply Program
AWS Rules	Assured Water Supply Rules
AZMET	Arizona Meteorological Network
BADCT	Best Available Demonstrated Control Technology
BMP Program	Best Management Practices Program
BMPs	best management practices
CAGRD	Central Arizona Groundwater Replenishment District
CAIDD	Central Arizona Irrigation and Drainage District
CAP	Central Arizona Project
CAVSRP	Central Avra Valley Storage and Recovery Project
CAWCD	Central Arizona Water Conservation District
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
Certificate of AWS	Certificate of Assured Water Supply
CMID	Cortaro-Marana Irrigation District
Code	Groundwater Code
CWA	Clean Water Act
DBP	disinfection by-products
DCE	dichloroethylene
Department	Arizona Department of Water Resources
Designation of AWS	Designation of Assured Water Supply
DPE	Dual Phase Extension
EPA	Environmental Protection Agency
EQA	Environmental Quality Act
ESA	Endangered Species Act
FICO	Farmers Investment Company
ft above msl	feet above mean sea level
ft bls	feet below land surface

FWID	Flowing Wells Irrigation District
GAD	gallons per animal per day
GIU	General Industrial Use Permits
GPCD	gallons per capita per day
gpm	gallons per minute
GPHUD	gallons per housing unit per day
GPS	Global Positioning System
GSF	Groundwater Savings Facility
GUAC	Groundwater Users Advisory Council
ICAP	Irrigation Conservation Assistance Program
IGA	intergovernmental agreement
IGFR	Irrigation Grandfathered Right
INA	Irrigation Non-Expansion Area
IPAG	Institutional/Policy Advisory Group
IPP	Institutional Provider Program
IRP	Irrigation Restoration Program
MCL	Maximum Contaminant Level
MDWID	Metropolitan Domestic Water Improvement District
mg/l	milligrams per liter
MPA	Microscopic Particulate Analysis
NPCCP	Non-Per Capita Conservation Program
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
PCE	tetrachloroethylene
RAP	Remedial Action Plan
ROD	Record of Decision
RCM	Reasonable Conservation Measure
RCRA	Resource Conservation and Recovery Act
REPP	Regional Effluent Planning Project
RFP	request for proposal
RRA	Reclamation Reform Act
RRC	Regional Recharge Committee
SAWRSA	Southern Arizona Water Rights Settlement Act
SCVWD	Santa Cruz Valley Water District
SDWA	Safe Drinking Water Act
SOAMA	State of the Active Management Area
SVE	soil vapor extraction
SX/EW	extraction/electrowinning
TACs	Technical Advisory Committees
TASRI	Tucson Aqueduct System Reliability Investigation
TCE	trichloroethylene
TDS	total dissolved solids
THM	trihalomethanes

TIAA	Tucson International Airport Area
TMP Scenario	Third Management Plan Scenario
TT	Treatment Techniques
USBR	United States Bureau of Reclamation
USCWUG	Upper Santa Cruz Water Users Group
USDA	United States Department of Agriculture
USF	underground storage facility
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWS	Underground Water Storage, Savings, and Replenishment Program
VOC	volatile organic compound
WCPA	Water Consumer Protection Act
WIFA	Water Infrastructure Finance Authority
WMAP	Water Management Assistance Program
WQARF	Water Quality Assurance Revolving Fund
WQP	Water Quality Parameter

Glossary of Terms

1. **Active Management Area**: An initial active management area is a geographical area which has been designated by the Legislature as requiring active management of groundwater or, in the case of the Santa Cruz active management area, active management of any water, other than stored water, withdrawn from a well. A.R.S. § 45-402(1). Subsequent active management areas may be designated through local initiative or by the director of the Department. A.R.S. §§ 45-412 through 45-415.

2. **Aquifer**: An aquifer is a geologic formation that contains sufficient saturated materials to be capable of storing water and transmitting water in usable quantities to a well. A.R.S. § 45-561(1).

3. **Assured Water Supply**: Under A.R.S. § 45-576, a developer may not offer to sell or lease in an active management area subdivided lands (six or more lots under 36 acres in size) until it first demonstrates to the Department that it has a water supply that meets certain criteria. In this regard, the developer has two options: (1) the developer may obtain a certificate of assured water supply from the Department, or (2) the developer may obtain water service from a water provider whose service area has a designation of assured water supply. Either the developer applying for a certificate of assured water supply or the water provider applying for a designation must demonstrate that it has a water supply that meets the following criteria: (1) the supply is of "adequate quality," (2) the supply will be continuously available to meet the water needs of the proposed use for at least 100 years, (3) the projected use is consistent with the management plan of the active management area, (4) the projected use is consistent with achievement of the management goal of the active management area, and (5) the financial capability has been demonstrated to construct the water facilities necessary to make the supply of water available for the proposed use, including a delivery system and any storage facilities or treatment works. A.R.S. § 45-576(I). See the assured water supply rules set forth at A.A.C. R12-15-701 *et seq.* for more explanation of the assured water supply program.

4. **Augmentation**: Augmentation means supplementing the water supply of an active management area and may include the importation of water into the active management area or storage of water pursuant to laws relating to underground water storage set forth at A.R.S. § 45-801.01 *et seq.*

5. **Effluent**: Effluent means water that has been collected in a sanitary sewer for subsequent treatment in a facility that is regulated pursuant to A.R.S. §§ 49-361 and 49-362. Such water remains effluent until it acquires the characteristics of groundwater or surface water. A.R.S. § 45-101(4).

6. **Exempt Well**: An exempt well is a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater for non-irrigation uses. A.R.S. § 45-402(8). Withdrawals of groundwater from exempt wells do not require groundwater rights and are exempt from many provisions of the Groundwater Code, including water measurement and annual reporting. Before drilling an exempt well, a notice of intention to drill must be filed with the director. In an active management area, only one exempt well may be drilled or used to serve the same use at the same location. See A.R.S. § 45-454 for other important restrictions on the use of exempt wells.

7. **General Industrial Use Permits**: General industrial use permits are permits issued pursuant to A.R.S. § 45-515 for the withdrawal of groundwater from a point outside of the exterior boundaries of the service area of a city, town or private water company for a general industrial use located outside of the exterior boundaries of such service area. A "general industrial use" means a non-irrigation use of groundwater except uses subject to dewatering permits and mineral extraction and metallurgical processing permits, as well as uses for which a certificate of assured water supply is required. General industrial use includes animal industry use. See A.R.S. § 45-515 for other requirements and restrictions on general industrial use permits.

8. **Grandfathered Rights**: A grandfathered right is a right to withdraw and use groundwater within an active management area based on the fact of lawful withdrawals and use of groundwater prior to June 12, 1980 for all initial active management areas. *See* A.R.S. §§ 45-461 to 45-482. There are three types of grandfathered rights: (1) Irrigation grandfathered rights, (2) Type 1 non-irrigation grandfathered rights, and (3) Type 2 non-irrigation grandfathered rights. A grandfathered right may be sold or leased. However, an irrigation grandfathered right or a Type 1 non-irrigation grandfathered right may be sold or leased only with the land to which they are appurtenant.

9. **Groundwater**: Groundwater means water under the surface of the earth regardless of the geologic structure in which it is standing or moving. Groundwater does not include water flowing in underground streams with ascertainable beds and banks. A.R.S. § 45-101(5).

10. **Groundwater Basin**: A groundwater basin is an area which has been designated by the director as enclosing a relatively hydrologically distinct body or related bodies of groundwater, and which is described horizontally by surface description. A.R.S. § 45-402(13).

11. **Groundwater Withdrawal Permit**: A Groundwater Withdrawal Permit is a permit to withdraw groundwater issued by the director pursuant to article 7 of the Groundwater Code. A.R.S. § 45-511. In an active management area, a person without a service area right or grandfathered right may not withdraw groundwater from a non-exempt well unless the person obtains a groundwater withdrawal permit from the director. The categories of groundwater withdrawal permits are as follows: (1) dewatering permits, (2) mineral extraction and metallurgical processing permits, (3) general industrial use permits, (4) poor quality groundwater permits, (5) temporary dewatering or electrical generation permits, (6) drainage water permits and (7) hydrologic testing permits. *See* A.R.S. § 45-512 through 45-528 for requirements and restrictions on groundwater withdrawal permits.

12. **Industrial Use**: An industrial use is a non-irrigation use of water not supplied by a city, town or private water company, including animal industry use and expanded animal industry use. A.R.S. § 45-561(5).

13. **Irrigation Grandfathered Rights**: An irrigation grandfathered right is a right to irrigate with groundwater land that was legally irrigated any time between 1975 and 1980. A.R.S. § 45-465. An irrigation grandfathered right gives the holder the right to irrigate land inside an active management area with groundwater but does not specify the amount of water that may be used on the irrigated acreage. The Department's groundwater management plans specify the amount. The water allocations to individual irrigation grandfathered right holders for the third management

period are on file and may be reviewed at the respective active management area offices. Irrigation grandfathered rights may not be transferred to another location, except in cases where the irrigation acres have been damaged by flood waters or have a limiting condition which impedes efficient irrigation practices.

14. **Municipal Use**: Generally, municipal uses are all non-irrigation uses of water supplied by a city, town, private water company or irrigation district.

15. **Poor Quality Groundwater Withdrawal Permits**: Poor quality groundwater withdrawal permits are permits issued pursuant to A.R.S. § 45-516 to non-irrigation users to withdraw poor quality groundwater if the director determines that the groundwater to be withdrawn because of its quality has no other beneficial use at the present time and that the withdrawal of such groundwater is consistent with the management plan. A.R.S. § 45-516.

16. **Safe-yield**: Safe-yield means a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area. A.R.S. § 45-561(12).

17. **Service Area Rights**: Cities, towns, private water companies and irrigation districts have service area rights to withdraw and deliver groundwater for use by customers. *See* A.R.S. §§ 45-491 to 45-498. A city, town or private water company has the right to withdraw as much groundwater from within its service area as it needs to serve the residents and landowners within the area, subject to the conservation requirements imposed in the management plans and the assured water supply rules, as applicable. The Groundwater Code defines the service area of a city, town or private water company as the area of land actually served by the entity and any additional areas that contain an operating distribution system owned by the entity and used primarily for the delivery of non-irrigation water. A.R.S. § 45-402(31).

18. **Subbasin**: A subbasin is an area which has been designated by the director as enclosing a relatively hydrologically distinct body of groundwater within a groundwater basin, and which is described horizontally by surface description. A.R.S. § 45-402(34).

19. **Subsidence**: Subsidence means the settling or lowering of the surface of land which results from the withdrawal of groundwater. A.R.S. § 45-402(36).

20. **Surface Water**: Surface water means the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, floodwater, wastewater or surplus water, and of lakes, ponds and springs on the surface. For the purposes of administering Title 45, surface water is deemed to include Central Arizona Project water. A.R.S. § 45-101(9).

21. **Type 1 Non-Irrigation Grandfathered Rights**: A Type 1 non-irrigation grandfathered right is a non-irrigation grandfathered right associated with retired irrigated land. A Type 1 non-irrigation grandfathered right generally allows a right-holder to either withdraw or receive no more than three acre-feet of groundwater per acre per year for a non-irrigation purpose for use on the retired land. Type 1 non-irrigation grandfathered rights may not be transferred to another location, although water pumped from appurtenant areas may be transported to a new location for a non-irrigation use subject to certain restrictions. See A.R.S. §§ 45-463, 45-469, 45-470 and 45-473.

22. **Type 2 Non-Irrigation Grandfathered Rights**: A Type 2 non-irrigation grandfathered right is a non-irrigation grandfathered right not associated with retired irrigated land. Generally, Type 2 non-irrigation grandfathered rights equal the maximum amount of groundwater withdrawn and used for non-irrigation purposes in any one of the five years prior to June 12, 1980. Type 2 non-irrigation grandfathered rights may be transferred to new locations within the same active management area. See A.R.S. §§ 45-464 and 45-471.

23. **Water Duty**: A water duty or irrigation water duty is the amount of water in acre-feet per acre that is reasonable to apply to irrigated land in a farm unit during the accounting period, as determined by the director. A.R.S. §§ 45-402(24) and 45-467.

24. **Well**: A well is a man-made opening in the earth through which water may be withdrawn or obtained from beneath the surface of the earth, with certain exceptions. A.R.S. § 45-402(43).